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Conference Abstract

Understanding the Importance of Social Media as a Citizen Science Platform by Using Tiger Sighting Photographs from Facebook

Nandita Barman‡, Arjan Basu Roy‡, Rishin Basu Roy‡, Vijay Barve‡,§

‡ Nature Mates Nature Club, Kolkata, India
§ Natural History Museum of Los Angeles County, Los Angeles, United States of America

Corresponding author: Nandita Barman (barmannandita283@gmail.com)

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Abstract

Availability of scientific data and public support for conservation actions are necessary tools in mitigating conservation issues (Forrester et al. 2017). According to Falk and Dierking (2010), informal learning may be considered as an important avenue to engage the public with both science and nature. Ballantyne et al. (2007) reported informal learning is a key strategy to maintain support for conservation. Citizen science is considered a useful method for collecting ecological data at large scales involving non-professional volunteers in scientific research (Tulloch et al. 2013). Dickinson et al. (2012) reported it is an effective form of informal education about the natural world. Citizen science is a unique tool that can be used as a vehicle for direct experience of nature as well as offering informal education.

Ubiquitous and inexpensive availability of internet-connected devices leads the public to engage in social media platforms at a large scale. People from various age groups from a variety of professions regularly use social media platforms like Facebook, Instagram, Flickr etc., to share their activities and creativity, as well as engage in fruitful discussions. Facebook alone enjoys more than 2.35 billion monthly active users (Abu Al-Haija et al. 2019). Photo sharing platforms can help in generating occurrence datasets (Barve 2014)

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as well as understanding the spatial distribution of various organisms (Jiménez-Valverde et al. 2019).

In our current study (Barman et al. 2022) we have selected Facebook as a source to collect data and analyze it from a conservation perspective. On Facebook, common people, travelers, amateur scientists, and corporations, share their photos and observations of nature in a structured or unstructured manner, knowingly or unknowingly. By compiling data from communities on Facebook, we have attempted to co-relate various parameters like time and space, to understand the status and abundance of the Bengal tiger (*Panthera tigris tigris*), which is one of the largest and charismatic carnivorous megafauna (Kumar 2021), and plays a key role in conservation management plans as an umbrella species (Roberge and Angelstam 2004). Based on the dates that images were posted, we collected the data for a period of eighteen years (2004–2022). Individual tigers can be identified in the field based on their stripe pattern and are individually named by the staff of the forest department and tour naturalists. As the tiger is a critically endangered animal, it is important to have maximum data available for every individual, which can help in understanding, in a robust manner, the species ecology with respect to the landscape. Data compilation involved detailing the metadata recorded by the person posting and the comments on the post, as well as metadata evident from the photograph e.g., sex, life stage and activity. Geotagging was performed based on the place mentioned as the location of the photograph, to understand the extent of their area of mobility in a meaningful way. Data compiled for an individual tiger specimen, on the basis of photographs shared of various individuals over a period of time in social media platforms, has the potential to generate the same result involving radio telemetry, which is invasive and expensive in nature. It will then elevate the importance of photography as scientific documentation for ecological understanding and will generate interest through the participation in citizen science in conservation efforts involving megafauna.

The sampled data shows a higher number of photographs available from protected areas that have a clear tourism protocol. We have also compared our distribution map, evolved out of this effort (Fig. 1) with the maps created by the Tiger Monitoring Cell*[1] as a result of the Tiger Census activity, which happens in India every four years. This kind of cross referencing has the potential to bring out very interesting patterns in understanding coarse-scale ecological and geographic properties of a species (Peña-Aguilera et al. 2019, Soberón 2007).

Keywords

Community science, landscape type, geotagging

Presenting author

Nandita Barman

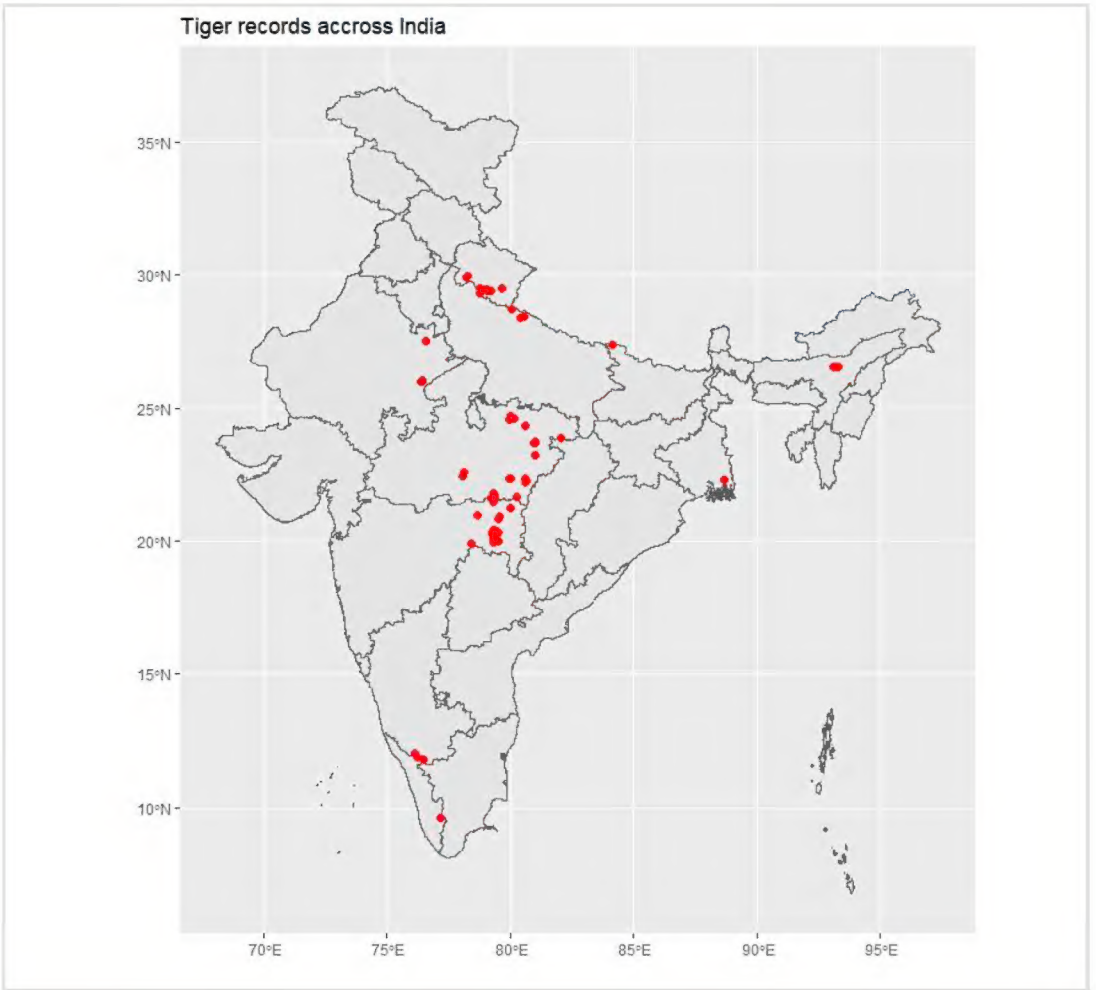

Figure 1.

Tiger records across India generated from Facebook photograph data points.

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Hosting institution

Nature Mates-Nature Club

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Endnotes

*1 https://wii.gov.in/tiger_reports